

General Project Information	
Project Sponsoring Agency	ODOT District 12
Project Name	CUY-90-21.02
PID	Not Programmed
Project Manager	Brian M. Blayney
Contact Phone	(216) 584-2102
Contact Email	Brian.Blayney@dot.ohio.gov

Location Information			
ODOT District	12	County	CUY
Route Number	90	Road Name	at MLK Interchange
Begin Logpoint	21.020	End Logpoint	
Begin Latitude	41.535	Begin Longitude	41.541
End Latitude	-81.630	End Longitude	-81.632

Project Description

Summary of Crash Patterns

A total of 76 crashes were observed in a 3-year period (2011-2013) on EB I-90 Exit ramp, WB Exit Ramp, MLK Drive and its intersections between WB Exit ramp and E.88th street. Of these, 56 crashes were observed on I-90 exit ramps; and 20 crashes on MLK Drive. 24% crashes resulted in injuries. Rear-end (74%), Fixed object/out-of-control (12%) and sideswipe-passing (8%) are the primary crash types.

I-90 EB Exit ramp to MLK, including I-90 gore area (40 crashes)

- 85% of the ramp crashes are rear end.
- Time of day: 8 am-10 am: 10 crashes or 25%; 3 pm-6 pm: 12 crashes or 30%. A total of 55% crashes occurred in a 5 hour period.
- 25 percent of ramp crashes resulted in injury.

I-90 WB Exit ramp to MLK, including I-90 gore area (16 crashes)

- Crash types: rear end (10 or 62%), sideswipe passing (3 or 19%) or fixed object (3 or 19%).
- Time of day: 6 am-8 am: 9 crashes or 56%; Rest of the crashes spread throughout the day.
- 44 percent of ramp crashes resulted in injury.

MLK Drive (20 crashes)

- 65 percent of crashes were rear end crashes (13 crashes)
MLK Drive experiences peak hour queueing in the interchange area, primarily in the SB direction during the AM peak and NB direction during the PM.
- 15 percent of crashes were fixed object (3 crashes).
- Time of day: 20% at 8 am hour, crashes spread through out the day between 6 am and 10 pm.

Summary of Recommended Countermeasures

MLK Drive

- Eliminate NB left turn lane at Broad, prohibit NB left turn at Broad.
- Extend two southbound through lanes on MLK Drive to East Blvd south of I-90.
- Signalize both EB and WB I-90 ramp terminals at MLK.
- Convert the EB I-90 exit ramp approach to allow dual right turns using existing ramp pavement.
- Widen the WB I-90 exit ramp to allow dual left turns at MLK Drive (600').
- Convert wide median on MLK to form left turn lanes to N. Marginal and EB I-90 entrance.
- Move SB lanes tight to NB lanes under I-90 to increase sight distance at EB exit.
- Rebuild EB I-90 entrance ramp to allow a channelized right turn to allow SB permissive lefts.
- Improve 460' final link of "Lake to Lakes" off-road shared-use path at challenging crossing of EB I-90 ramp.

Project Priority Information

- 2013 Urban Freeway Excess Locations list
- Rank #32: SLM 21.01 to 21.11 (MLK Drive interchange)

Crash Data					
Crash Totals					
	Fatal & Serious Injury (KA)	Visible Injury (B)	Non-Visible (C)	Property Damage Only (O)	Total
Existing Conditions: Predicted Crash Frequency	0.4610	1.9869	2.8754	8.9188	14.24
Existing Conditions: Expected Crash Frequency	0.4500	1.8301	3.2074	11.7085	17.20
Potential for Safety Improvement	-0.0110	-0.1568	0.3320	2.7897	2.95
Proposed Conditions: Expected Crash Frequency	0.2121	0.8563	1.4514	5.5248	8.04
Observed Crashes	1.0000	1.0000	8.6667	31.6667	42.33
Observed People Injury Totals					
	Fatal Injury (K)	Serious Injury (A)	Visible Injury (B)	Non-Visible (C)	Total
Observed People Injury Totals	0.0000	1.0000	1.0000	11.3333	13.33

Application Scoring				
Category	Scoring Value	Points Awarded	Points Possible	
Expected Crash Frequency	17.20	10	10	
Ratio of Observed Fatal and Serious Injuries to Observed Total Crashes	0.02	1	5	
% of the Potential for Safety Improvement to Total Expected Crashes	17.15%	20	20	
Relative Severity Index	\$23,326	2	10	
Equivalent Property Damage Only Index	3.19	3	5	
Volume to Capacity Ratio	1.54	10	10	
Benefit Cost Ratio	1.59	12	30	
Safety Funding Request Percentage	100.00%	0	10	
Total		58	100	

Strategic Highway Safety Plan	
Functional Class	Other Freeways or Expressways
Major Route AADT	124,000
Ohio Emphasis Area	Emphasis Area V - Incident and Congestion Related Crashes
Ohio Emphasis Area Subcategory	Rear End Crashes
FHWA Emphasis Area	Improving the design and operation of highway intersections
FHWA Improvement Category	Interchange design
FHWA Improvement Subcategory	Interchange design - other

Work Locations					
NLFID	Begin Logpoint	End Logpoint	Begin Latitude	Begin Longitude	Location Termini (i.e. from Street 1 to Street 2)
MCUYIR00090**C	21.020		41.540	-81.6313	I-90/MLK Interchange
MCUYCR00406**C	6.900	7.330	41.535	-81.6299	WB I-90 ramps/Lakeshore to East Blvd.

Project Funding							
Project Phase	Safety Study	Interchange Mod. Study	PE - Environmental	PE - Detailed Design	Right of Way /Utilities	Construction	Total
Fiscal Year	2015	2017	2017	2018	2018	2019	
Project Phase Completed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A	
Previous Safety	\$111,271.00						\$111,271.00
New Safety		\$50,000.00	\$175,000.00	\$75,000.00		\$2,249,000.00	\$2,549,000.00
Sponsor Funding							\$0.00
Total	\$111,271.00	\$50,000.00	\$175,000.00	\$75,000.00	\$0.00	\$2,249,000.00	\$2,660,271.00

Additional Funding Detail
 It is expected that Cleveland will apply for NOACA TA funds to implement desired enhancements (pavers, landscaping, decorative lighting) at interchange.

Project Development		
Project Phase	Completed by	Completion Date
Safety Study	LJB Inc	

Applicant Information		
Name	Title	Phone Number
Brian M Blayney	Traffic Planning Engineer	(216) 584-2102
Signature		Date
<i>Brian Blayney</i>		5/16/2016
		May 16, 2016

Version: 20150917

The following information should be included in submission of the safety project application:

1. An electronic copy of the Safety Engineering Study
2. All Excel Analysis Files
 May include Crash Analysis Module (CAM) Tool, Economic Crash Analysis Tool (ECAT), HSIP Application and Scoring Tool.
3. Benefit-Cost Results (Economic Analysis)
4. DSRT approval signatures